10 ME 41 P METROLOGY LAB

IV B.Tech I Semester

(with effect from the academic year 2013-2014)

Credits: 2

Periods/week: 3 *Sessional Marks: 40*

University Exam :3 Hrs *End Examination Marks: 60*

*(Any **Eight** or more of the following experiments will be given)*

List of Experiments:

1. Calibration of any two of the following instruments: (using slip gauges)
    i. Calibration of Micrometer.
    ii. Calibration of Mechanical Comparator.
    iii. Calibration of Vernier Calipers .
    iv. Calibration of Dial Gauge.

2. Measurement of taper angle using
    i. Bevel Protractor
    ii. Dial Gauge
    iii. Sine-Bar
    iv. Auto-Collimator.

3. Alignment tests:
    i. Parallelism of the spindle
    ii. Circularity & Concentricity of the spindle
    iii. Trueness of running of the spindle.

4. Gear testing:
   To find;
    i. diameter, pitch/module
    ii. pitch circle diameter
    iii. pressure angle
    iv. tooth thickness.

5. Check the straightness of a surface plate
    i. Using spirit level
        or
    ii. Using Auto-collimator

6. Check the flatness of a surface plate using one of the above methods.

7. Using light wave interference:
    i. Study of flatness of slip gauges
    ii. To find the height of a slip gauge.

8. Tool Maker's Microscope:
    i. Establish the thread details
    ii. To find the cutting tool angles.

9. Miscellaneous:
    i. To find the diameter of a cylindrical piece
    ii. Taper angle of a V-block
    iii. Central distance of two holes of a specimen.